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**Antiferromagnetic fluctuations in the paramagnetic phase of  
 $\text{La}_{2-2x}\text{Sr}_{1+2x}\text{Mn}_2\text{O}_7$  ( $x=0.3$ )**

D.T. Adroja<sup>1</sup>, T.G. Perring<sup>1</sup>, G. Chaboussant<sup>1</sup>, G. Aeppli<sup>2</sup>, Y. Tokura<sup>3</sup>

<sup>1</sup> *ISIS Facility, Rutherford Appleton Laboratory, Chilton, Didcot, OX11 0QX, UK*

<sup>2</sup> *NEC, 4 Independence Way, Princeton, New Jersey-08540, U.S.A*

<sup>3</sup> *Department of Applied Physics, University of Tokyo, Tokyo, 113, Japan*

The bilayered colossal magnetoresistive manganites,  $\text{La}_{2-2x}\text{Sr}_{1+2x}\text{Mn}_2\text{O}_7$  are being intensely studied because they allow the effect of reducing dimensionality from 3D to 2D on the competition between ferromagnetic double exchange, charge localisation, orbital ordering and superexchange to be studied in the manganites. In earlier work we observed the existence of AF-fluctuations coexisting with FM critical scattering in the paramagnetic phase of the bilayer manganites with hole doping  $x=0.4$  [1] and 0.35, which have three dimensional (3D) ordered FM ground states. Here we report measurements for  $x=0.30$ , which has 3D AF ordering below  $T_N = 95\text{K}$ , to test if the AF-fluctuations are a common feature of the bilayered manganites with different magnetic interactions. Our neutron scattering studies show that the paramagnetic phase with  $x=0.30$  contains short range and dynamical AF-fluctuations, as they do when  $x=0.35$  and 0.40. The AF- fluctuations appear on warming through  $T_N$  and have maximum intensity at this temperature. The correlation length of the AF-fluctuations is 10Å and shows weak temperature dependence between  $T_N$  and 300K. This unusual behaviour is very similar to that observed for  $x=0.35$  and 0.40. [1]T.G. Perring et al, Phys. Rev. Lett., 78, 3197 (1997)